SPECIFICATION AND PROJECT REQUIREMENTS

PROJECT LOCATION:

PROJECT TITLE: EXTERIOR BASE-WIDE MASS NOTIFICATION SYSTEM

1. GENERAL

1.1 Performance work statement: To provide a survey, design, and cost estimate for an exterior Attack Warning System utilizing hardware, software, and facility equipment for ---------- in accordance with local written guidance, this document, and established Uniform Facility Code(s) UFC 4-021-01, Mass Notification Systems, dated 18 DEC 2002.

1.1. The term "Contractor" shall refer to the principals and staff of the systems **integrator, their consultants, and subcontractors. The equipment manufacturer shall not be acceptable as the project contractor.** The term "Contracting Officer" shall refer to the Contracting Officer and their designated representative. The project manager may also be the Contracting Officer Representative (COR).

1.2. At the direction of the Contracting Officer, the Contractor shall make pre-proposal site visits, hold pre-proposal scope conferences, prepare a design, cost estimate(s) and proposal(s) for this project.

1.3. All data, reports, and materials generated by this performance work statement are the property of the Government and may not be distributed without prior, written approval of the Contracting Officer. All material will be returned to the Government upon request due to security concerns. The contractor shall safeguard the materials.

1.4. The Contractor shall advise the Project Manager prior to each proposed visit to the site at least 2 working days in advance.

1.5. All site conditions shall be field verified by the Contractor. Instrumental surveys in connection with location or verification of underground utilities or concealed features, required for this survey will be **provided by the government**. It shall be the responsibility of the Contractor to verify all underground utilities and structures on the project site required for proper operation. The Contractor shall notify the Contracting Officer of any Government assistance needed for providing labor or tools to obtain needed access to secure or protect enclosures. The Contractor shall notify the Directorate of Installation Support of any utilities to be located. The Directorate of Installation Support generally requires 5 working days to locate the utilities. The Contractor is responsible for correctly submitting the proper paperwork.

1.6. All contractual, financial, or technical questions shall be addressed to the Contracting Officer. The Contracting Officer shall distribute the technical questions to the Project Manager, which will be addressed in a timely manner

1.7. The Contractor shall follow the requirements given in the submittal section and submit a time-line of delivery, installation, testing, and final documentation for this project as required by the Contract Documents.

2. DESIGN AND EQUIPMENT CRITERIA

2.1 The Attack Warning Notification Systems shall be designed and installed in accordance with the criteria in UFC 4-021-01. The Attack Warning Notification Systems shall be a base-wide outdoor

speaker and siren system providing alarm tones and **intelligible** pre-recorded/live voice messages. The system will be used for providing mass notification for personnel in outdoor areas

2.2 Individual Building Mass Notification System. The Individual Building Mass Notification System is intended for Mass Notification in and around a single building and shall not be part of this contract. The wireless exterior Attack Warning System shall be provided with the capability to interface and control the Interior Mass Notification System.

2.3 The Attack Warning System shall consist of the following components:

- **Primary** Central Control Station with Graphical User Interface
- Remote Redundant Central Control Station **with Graphical User Interface**
- Remote **Speaker/ Sirens (RSS) complete with amplifiers, power supply, battery charger, CPU board, radios and batteries**
- Uninterruptible power supply (UPS) or Redundant (standby) power for all loads.

All equipment furnished as part of the Attack Warning System shall be Commercial Off The Shelf (COTS) and shall be non-proprietary

2.4 Attack Warning System Network: This system shall consist of the following general features:

- Use modular equipment and speakers suitable for installation in commercial/industrial applications with consideration of electrically hazardous locations.
- **Emergency stand by** power to operate exterior **equipment including ,all equipment included in the RSS**
- Full system supervision
- Full System Redundancy
- All equipment shall be non-proprietary and be COTS
- Have capability for interfacing with **existing fire alarm panels,** public address system in existing buildings and future new Mass Notification Systems installed in the facilities
- Self test and diagnostics
- **Primary communications between the Central Control Unit and the RSS shall be accomplished by radio frequency.** All radio communications shall be accomplished using Frequency Shift Key (FSK) encoded data with encrypted security code to prevent unauthorized messages or activation.
- **Redundant Communication between the Central Control Unit and the RSS's shall be accomplished by using the base's backbone (Example: Fiber) network. This will be accomplished by the Central Control Unit being directly connected to the network.**
- Ability to relay local diagnostics information to the Central Command Unit(s).
- The mass notification capability being provided is being installed to meet the requirements of UFC 4-021-01.

2.5 Central Control Unit Requirements: The Central Control Unit shall consist of the following components and features:

2.5.1 Graphical User Interface: Shall include computer and related system software, mouse, Windows **based OS, Inkjet Printer**, serial port, USB port, **microphone, Uninterruptible Power Supply (UPS)** and multi-strip power outlet. The computer shall be provided with sufficient capability to operate the system **that will allow for easy point and click operations** and perform the following operations

- Total, Zone and Single Alarm **Tone** Activations.
- Total, Zone and Single Tests.
- Total, Zone and Single PA Activations.
- Total, Zone and Single Cancel Activations.
- Automatic status reporting for:
    1. System Status for **RSS**
    2. Activations and the status of the activations
    3. Alarm Summary Report that will provide a historical report for all changes of status including all troubles, equipment failure, power trouble (including normal and emergency power), unsolicited messages, door intrusion, amplifier status, last activation and sync error, operator log-on/ log-off and configurable reports for time based events such as **"all troubles from 1/01/04 to 6/30/04".**
    4. Communications log
- Software screen displays the customized map and all general status of the sirens or remote equipment. **The GUI shall provide for easy uploading of site plan changes and interactive operation.**
- **Four** levels of password protection.
- Activations, Alarm Summary, communications log and change of state are recorded and may be viewed online or printed out **with the proper level password**
- Perform automatic activations from field push buttons.
- Services Menu to Poll all Attack Warning System equipment.
- Configuration Menu to create, edit, delete, and set in/out of service for all sirens.
- The software monitors and displays equipment on a graphical layout of the base for easy viewing.
- **The ability to record and send digital messages to the RSS's via the primary and/or Redundant communication paths with confirmation the message was received**
- The capability to connect to and control road traffic signs for interface to the base wide attack warning system
- **Delivery of two concurrent** recorded messages: one for the threatened areas or buildings and one for nearby areas or buildings.
- Means of targeting specific messages to **any individual RSS, "zone" of RSS's or all areas**
- Secure method for easily **creating or** modifying recorded messages.
- Complete set of system-wide self-diagnostics **or individual pole diagnostics**.
- Easy-to-use diagnostic information displays.
- Historical diagnostic information and system event log files.
- Capable of delivering text pager messages over existing or new pager station.
- Capable of delivering faxes over phone system.
- Microphone for live PA.
- **User defined volume** control

- **Printer** port
- **Back up power shall be provided for the unit in the event of power failure. The Central Control Unit shall be able to operate with or without a Graphical User Interface attached via the DTMF decoder**
- Connection to existing or new "Reverse 911" system, mass telephone dialing/ notification
- **Radio that will provide encrypted and secure communications with the Remote Siren/ Speaker Units**
- **Network Connection to the bases backbone as a Redundant (backup) means of communication**

2.6 Remote Redundant Central Control Station: The Remote Redundant Central Control Station shall be identical to the Central Control Station **including the GUI interface.**

2.7 Remote Speaker-Siren Units: The **RSS Units** shall consist of the following components and features:

- Fully addressable Controller that includes a Class D audio amplifier.
- **Charger/ Power Supply that will accept 120 vac input, auxiliary emergency generator input, 12 vdc battery input , or solar panel input.**
- **Provide at least 15 minutes** of pre-recorded messages.
- Circuit breakers for the batteries
- **Auxiliary input for digital recording devices such as CD, MPEG3 player etc.**
- Battery Backup using 12V **batteries, the amp hour rating will be in accordance with vendor supplied battery loading calculations**
- **Dual Amplifier/ Dual Power Supply for system redundancy**
- **Amplifier efficiency at approximately 93%**
- **Amplifier shall have .1% Harmonic Distortion**
- **Amplifier shall have a frequency response of 22 – 22,000 Hz**
- Provide a minimum of seven (7) standard tones. **In addition, the siren vendor shall have the capability to create custom tones.**
- Perform "live" public address announcements and digital messaging services.
- Autonomous control capability at each RSS. **The RSS shall be able to function independently. The RSS shall be furnished complete with local keyable microphone and autonomous controls**
- **Volume Control for the amplifiers**
- **At 1 KHz the THD of 2 percent or less at the speaker**
- **Headphone input to listen to the broadcast over the pole privately for testing purposes**
- **LED indicators to show the send and receive status of the RF communications**
- Capacity for at least **60 minutes** prerecorded messages.
- Ability to deliver **prerecorded or live** messages quickly.
- Ability to automatically repeat prerecorded messages.
- Complete set of self-diagnostics for the controller and appliance network.
- **RSS's** shall be provided with a minimum 72 battery stand-by **with one (1) hour of continuous operation at the end off the stand-by operation**
- Plug-in for standby portable generator
- Tamper switch that will signal the **Central Control Unit** that the RSS enclosure door is open
- High Performance microprocessor with, **512M of RAM field upgradeable to 1G of RAM, for messaging and auxiliary functions such as input modules,** Flash memory, real time clock, automatic gain control circuit, dip switches to easily set the siren address and logic power supplies

- **8 point input module to monitor contacts and voltage inputs from sensors**
- **The ability to receive and store messages via the primary and redundant communication paths with a confirmation signal sent back to the primary and Redundant Central Control Units**
- **Secondary communication for connecting to the base's back bone network (Ex.: Fiber)**
- **USB input for portable computer connect to make field changes**
- **Switches for directional broadcast by software disconnect of speaker circuits**
- **DTMF (Dual Tone Multiple Frequency) Decoder**
- **The ability to communicate with the Central Control Unit via satellite**
- **All panel mounted equipment at the RSS shall be housed in a heavy duty, rugged aluminum housing**

- 2.8 Sirens/ Speakers: The siren/ speakers shall be an omni-directional electronic siren**/ speaker** that are able to be configured to provide 90, 180, 270 and 360 degrees of consistent and complete acoustical tone and voice notification performance. The siren/ speaker head must be designed allowing the speakers to be pointed parallel with the ground surface and to allow a downward tilt to control sound coverage. The speaker's downward tilt shall be configured for either one or all 90 degree sound pattern directions. **The speakers shall:**

- **The speakers shall produce a maximum omni directional output of up to 130 db @1 KHz@ 1 meter distance.**

- **The speakers shall be capable of using phase shifting and filtering to help eliminate unwanted "spillover" emissions and back-plane noise to areas off base.**

- **The speakers shall be a pure resistive load**

- **The back-plane of the speaker output shall be minimal to allow mounting of the speaker directly to an occupied building, with minimal incursion of the speakers output into the building. This will include this will allow the locating the RSS's near off-base populated areas and sensitive wildlife areas**

- **Speakers shall be able to operate between the temperatures of -40 C to 80 C**

3. QUALIFICATIONS

3.1 The design of the Attack Warning System shall be done by a N.I.C.E.T Level IV, the installation of the low voltage conductors shall be done by a licensed electrical contractor or NICET Level II installer. All conduit and 120 vac shall be done by a licensed electrical contractor

3.2. Any modifications to this Statement of Work/Performance of Requirements shall only be authorized by the Contracting Officer. The Contractor shall integrate any authorized modifications into the project after the proper documentation is received from the Contracting Officer.

3.2.1 The Base-Wide Attack Warning System Plan submitted by the Contractor shall address all elements of the local written guidance, this document, and established Uniform Facility Code(s) UFC 4-

021-01, Mass Notification Systems, dated 18 DEC 2002 and any other applicable Uniform Facility Code and any other necessary applicable standards.

3.2.2. Prior to the commencement of work provide a listing of the facilities that address the order in which the work is planned to be done. The contracting officer prior to commencing work must approve this plan.

3.2.3 Prior to the installation of any equipment the contractor must apply and receive frequencies from the base Directorate of Installation Management (DOIM.)

4.) Operational Concept

The Attack Warning System shall meet the performance capabilities as required in the UFC. The Attack Warning System shall be operated from the **Primary Command Controll Unit located at** (_____) with a **Redundant Command Control Unit located at** (_____).

4.1 Operational Controller: There will be two controller positions. The primary controller location is at the (_____). An alternative/backup controller location shall be at (_____). The Attack Warning System shall communicate with the telephone alerting system, **any future new** individual building mass notification system, **future Highway Advisory Radio and control system of dynamic signs for emergency information and traffic management all via the NTCIP protocol utilizing the CHAP protocol for security.**.

4.2. Remote Siren **Speaker** Units **(RSS):** Each **RSS** site for each zone shall include a field **mounted local control unit, microprocessor, amplifier, charger, power supply, radio, mounting brackets** and loudspeaker assembly. The exact locations of the siren/speaker sites will have to be determined **using Global Positioning System coordinates** during a joint site survey between the contractor and the Government. All equipment and parts shall be housed in a modular, mountable cabinet. The field control cabinet shall be pre-assembled and pre-wired. Connectors shall be provided to connect all required equipment. **All field wires shall be labeled with heat shrink labels**. **All external conductors shall be provided with surge suppression using 100% silicon avalanche suppressor diode technology. Hybrid surge suppression will not be acceptable. The surge suppression shall be UL Listed to UL standard 1449 for the 120 vac, and UL standard 497B for the speaker circuits.**

4.3. Radio Equipment: The Attack Warning System shall be equipped with all required radio equipment, antenna, and interface for supporting radio control via VHP turntable frequency range. The radio equipment shall be FCC certified and support narrow-band as mandated by the National Telecommunications and Information Administration (NTIA).

4.4 Stand-by Power: Each field control unit at the remote site shall be equipped with a minimum rated 60 minutes backup time. The "stand-by" shall be 72 hours of stand by with 60 minutes of full load operation at the end of the supervisory period.

4.5 Mobile Generator Hook-up: Each field unit at the remote site shall have a mobile back-up generator hook up. The Government will supply the mobile generator, as required.

4.6 Poles: The contractor shall provide and install the poles as required. Existing poles shall be reused if possible. Poles shall be designed with sufficient Effective Projected Area (EPA), sufficient base yield strength, sufficient anchor bolts yield strength, and concrete foundation (if necessary) to accept the total weight of the sound system and any attachments thereon under the velocity pressure of wind up to 86.8 knots or 100 MPH. Poles shall be **Class 2** wooden or galvanized steel and properly finished as to inhibit deterioration and corrosion.. **The pole shall be mounted at least 10 feet into the ground.**

4.7. Height: Height of siren/ speaker assembly should be mounted at the top of tower or pole. The minimum mounting height must be based on the rated output of warning device in **dB at 1 meter to avoid risk of hearing damage to pedestrians**. The maximum pole height shall not **be less than 30 feet or** exceed 60 ft from the ground.

4.8 Height: The Remote Speaker Siren Unit cabinet shall be mounted on the pole with the bottom of the enclosure 10 feet above the ground.

4.9 Electrical Requirements: The contractor shall provide **and install conduit, conductors pole mounted lockable disconnect switch** to provide electrical power feeders to the **RSS** locations.

4.10 Other information: The contractor shall process and coordinate with the Directorate of Installation Support for digging permit before digging. The contractor must coordinate with the Project Manager before working on this project to obtain restrictions

4.11 All exposed hardware at the field shall be weatherproof. The exposed metal surfaces shall be properly finished as to inhibit deterioration and corrosion.

4.12 Each **RSS** shall have lightning protection and grounding systems bonded to the earth ground rod in accordance with the latest edition of the National Electric Code.

4.13 Handling and control of Equipment: The contractor shall be responsible for all handling and control of the equipment including loading, unloading, packing, unpacking, inventory, inspection and security. The government will provide a secure, dry storage area.

5.) Close Out Documentation

5.1 Operation and Maintenance Manuals: The contractor shall provide O&M manuals for all equipment installed for this project. The manuals shall include user guides, description, as-built installation drawings, and operation and maintenance information. The contractor is required to provide detailed inter-connection drawings between the present and new systems.

5.2. Technical Supported Documents: The contractor shall provide technical supported documents, manuals, brochures, and specification sheets for each proposed product with the technical proposal.

5.3 Training: The contractor shall provide initial training on how to operate the Attack Warning System for four government representatives

5.4. Warranty: All equipment shall include at least **a two** year warranty for parts and labor from the date the equipment was placed in service.

5.5 Maintenance Services: The contractor shall provide to the Government the scopes, definitions, terms and conditions of maintenance services. In addition the contractor shall provide the costs of a year to year maintenance agreement for the Attack Warning System that will start after the completion of the warranty period.

6.) Government Supports (Requirements):

6.1 Landline: The Government will provide landline voice grade cable to the pole location, if required. The contractor shall coordinate with the Directorate of Installation Management on all communication requirements with the Directorate of Installation Support and Directorate of Installation Operations.

6.2.VHF Frequency: The Government will provide a VHF frequency for radio control.

6.3 Power Meters: Where required the government will supply power meters to measure the power used by the RSS

7. SUBMITTAL REQUIREMENTS

7.1 All Final Attack Warning System/construction drawings shall be on a minimum of 22-inch X 34-inch drawing and ACAD cd.

7.2 The submittal packages shall be submitted and approved prior to the commencement of installation. The submittals shall include the following information:

- **Base Site Plan Drawings showing the exact locations of each RSS. Base Site Plan Drawings must be signed by the N.I.C.E.T. Level IV along with their NICET Certification number**
- **RSS Wire Termination Connection Drawing. The drawing shall include part numbers, quantities, manufacturer, all input and output points, and wire connections. RSS Wire Termination Connection Drawing must be signed by the N.I.C.E.T. Level IV along with their NICET Certification number**
- **Tones and functions of tones being provided**
- **Submittal for frequency permit.**
- **Contractor contact information**
- **Stand by battery calculations for the RSS**
- Data sheets/ specifications in 8-l/2"Xll" format **for all equipment being provided as part of this contract**.
- Evidence of the Designers NICET IV Certification
- Evidence of the low voltage wire installers NICET II or Electrical Contractors Certification
- Evidence of the conduit and 120 vac installers Electrical Contractor Certification

MASS NOTIFICATION SYSTEM IMPLEMENTATION PLAN PRIORITY LIST

GROUP I

Mission Essential Vulnerable Areas

1-
2-
3-
4-

High Risk Targets

1-
2-
3-
4-
5-

GROUP II

1-
2-
3-
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8-

GROUP III

1-
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10-

End Statement of Work